

Earth Science

Course Syllabus



Supervising Teacher

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Course Description:

This course meets the graduation requirement for a laboratory science course. This course meets the graduation requirement for a laboratory science course. Earth Science focuses on the study of Earth and space. The topics covered include astronomy, earth structure, the scientific method, the solar system, earthquakes, volcanoes, fossils, rocks, and minerals, the study of Earth's surface, climate and weather, weathering, erosion, water resources, the atmosphere, weather, climate, and man's impact on the Earth.

Recommended Textbook Options:

Harcourt Holt: Earth Science

McGraw-Hill Glencoe: Earth Science: Geology, The Environment & The Universe

Pearson Prentice Hall: Earth Science

Supplies or Equipment:

A list of materials for each lab is found in the instructions of each laboratory. Laboratories can be accessed on the moodle site for this course.

Course Evaluation:

A. Semester Examination: 12% of semester grade

A comprehensive semester examination will be given during exam week each semester. Semester examinations will be given by a supervising instructor at a previously agreed upon location, most often a resource center. Practice quizzes, study guides, a list of lecture topics and times and other resources to help students better prepare for the examination can be found on the moodle site for this course.

B. Home Participation and Portfolio: 60% of grade

Home participation is to be determined by the home teacher. The participation may include, but is not limited to, textbook activities, quizzes, unit tests, projects, oral reports, or research papers. Grades for home participation will be submitted to the contact teacher Each quarter for inclusion on the student's report card. A portfolio of student work which may include copies of some of the laboratories will be presented to the contact teacher once per semester.

C. Laboratory Expectations: 28% of grade

Students are expected to complete four (4) labs per semester from a selection of eight (8) laboratories as indicated in the moodle course page. All laboratories must be completed only by the student and a full experiment write-up/report must be submitted to the supervising instructor on anchor due dates. All write-ups must contain at least one picture of the student performing the experiment, unless it is performed under supervision of an IDEA instructor at a local resource center. In the case of performing a supervised experiment, the supervising instructor's signature can substitute for the photographic documentation of student participation.

End of Course Assessment:

A comprehensive examination will be given each semester, in addition to required laboratories and the student portfolio. The exam and lab grades will be averaged as described above and will account for 40% of the final semester grade. This assessment grade will appear on the student's report card, and be entered at the end of each semester by the instructor.

Pacing Guide

The topics and standards for this course have been divided between the two semesters.

Semester 1(Fall)	Semester 2 (Spring)
Scientific Investigation	Shaping Earth's Surface
Map Skills	Investigating Earth's History
Minerals and Rocks	Oceanography
Plate Tectonics	Meteorology
	Astronomy
	Natural Resources

In order to fulfill this pacing requirement, the recommended texts have been broken down by chapter. Covering the chapters in the order listed will insure that all topics on the final exam will be covered during the appropriate semester.

Harcourt Holt: Earth Science

Semester 1(Fall)	Semester 2 (Spring)
Chapters 1-2	Chapters 14-18
Chapter 3	Chapters 8-9
Chapters 4-6	Chapters 19-21
Chapters 10-13	Chapters 22-25
	Chapters 26-30
	Chapter 7

McGraw-Hill/Glencoe: Earth Science: Geology, The Environment & The Universe

Semester 1(Fall)	Semester 2 (Spring)
Chapter 1	Chapters 7-10
Chapter 2	Chapters 21-24
Chapters 3-6	Chapters 15-16
Chapters 17-20	Chapters 11-14
	Chapters 28-31
	Chapters 25-27

Pearson Prentice Hall: Earth Science

Semester 1(Fall)	Semester 2 (Spring)
Chapter 1	Chapters 5-7
Chapters 2-3	Chapters 12-13
Chapters 8-11	Chapters 14-16
	Chapters 17-21
	Chapters 22-25
	Chapter 4

Additional Information from the Instructor:

Upon successful completion of earth science, the student will be able to:

- *Plan and conduct investigations in which volume, area, mass, elapsed time, direction, temperature, pressure, distance, density, and changes in elevation/depth are calculated utilizing the most appropriate tools.*
- *Construct and interpret scales, diagrams, maps, charts, graphs, tables, and profile.*
- *Construct and define a scientific viewpoint.*
- *Manipulate experimental variables.*
- *Analyze how science explains and predicts the interactions and dynamics of complex Earth systems.*
- *Recognize that evidence is required to evaluate hypotheses and explanations.*
- *Compare different scientific explanations for a set of observations about the Earth.*
- *Investigate and understand how to read and interpret maps, globes, models, charts, and imagery including maps (bathymetric, geologic, topographic, and weather) and star charts, aerial photography and satellite images.*
- *Determine direction and measurements of distance on any map or globe.*
- *Calculate location by latitude and longitude and topographic profiles.*
- *Investigate and understand how to identify major rock-forming and ore minerals based on physical and chemical properties.*
- *Investigate and understand the rock cycle as it relates to the origin and transformation of rock types and how to identify common rock types based on mineral composition and textures.*
- *Identify the three types of rocks by their characteristics.*
- *Understand the differences between renewable and nonrenewable resources.*
- *Discuss the advantages and disadvantages of various energy sources.*
- *Make informed judgments related to resource use and its effects on Earth systems and the environmental costs and benefits.*
- *Understand plate tectonics.*
- *Describe how processes such as faulting, folding, volcanism, metamorphism, weathering, erosion, deposition, sedimentation, subduction, rifting and sea floor spreading, and continental collision create various geologic features on earth.*
- *Describe how freshwater resources are influenced by geologic processes and the activities of humans.*
- *Understand the processes of soil development.*
- *Understand that many aspects of the history and evolution of the Earth and life can be inferred by studying rocks and fossils.*
- *Describes how oceans are complex, interactive physical, chemical, and biological systems and are subject to long- and short-term variations.*
- *Understand that physical and chemical changes occur in the oceans such as tides, waves, currents, sea level and ice cap variations, upwelling, and salinity variations.*
- *Identify the features of the sea floor as reflections of tectonic processes.*
- *Explain the interrelationship of geologic processes, biologic processes, and human activities on its composition and dynamics of the atmosphere.*
- *Describe the atmospheric regulation mechanisms including the effects of density differences and energy transfer; and the potential atmospheric compositional changes due to human, biologic, and geologic activity.*
- *Understand that energy transfer between the sun and the Earth and its atmosphere drives weather and climate on Earth.*
- *Observe and collect weather data and understand how meteorologists predict weather.*
- *Identify the factors that create severe weather occurrences, such as tornadoes, hurricanes, and major storm*
- *Describe the position of the Earth in the solar system.*
- *Explain how the sun-Earth-moon relationships creates seasons, tides, and eclipses.*
- *Recognize the sun, planets and their moons, comets, meteors, and asteroids by their characteristics.*
- *Describe the history and contributions of the space program.*
- *Understand the scientific concepts related to the origin and evolution of the universe including nebulae, stellar evolution, structure of galaxies and the big bang theory.*

I-DEA Student Honor Code:

With any form of valid proof of dishonesty with regard to student work or testing, the instructor may elect from a range of actions. Academic dishonesty could lead to a zero grade for the assignment or even failure for the entire course following consultation between the instructor, Secondary Supervisor, and Director.

All students must adhere to the **Honor Code**:

“On my honor, I will maintain the highest possible standards of honesty, integrity and personal responsibility. This means I will not lie, cheat or steal, and as a member of this academic community, I am committed to creating an environment of respect and mutual trust.”

IDAHO CONTENT STANDARDS: EARTH SCIENCE

Standard 1: Nature of Science

Goals:	Objectives						
Goal 1.1: Understand Systems, Order, and Organization	8-9.ES.1.1.1 Explain the scientific meaning of system, order, and organization.			8-9.ES.1.1.2 Apply the concepts of order and organization to a given system.			
Goal 1.2: Understand Concepts and Processes of Evidence, Models, and Explanations	8-9.ES.1.2.1 Use observations and data as evidence on which to base scientific explanations.		8-9.ES.1.2.2 Develop models to explain concepts or systems.		8-9.ES.1.2.3 Develop scientific explanations based on knowledge, logic, and analysis.		
Goal 1.3: Understand Constancy, Change, and Measurement	8-9.ES.1.3.1 Measure changes that can occur in and among systems.		8-9.ES.1.3.2 Analyze changes that can occur in and among systems.		8-9.ES.1.3.3 Measure and calculate using the metric system.		
Goal 1.6: Understand Scientific Inquiry and Develop Critical Thinking Skills	8-9.ES.1.6.1 Identify questions and concepts that guide scientific investigations.	8-9.ES.1.6.2 Utilize the components of scientific problem solving to design, conduct, and communicate results of investigations	8-9.ES.1.6.3 Use appropriate technology and mathematics to make investigations.	8-9.ES.1.6.4 Formulate scientific explanations and models using logic and evidence.	8-9.ES.1.6.5 Analyze alternative explanations and models.	8-9.ES.1.6.6 Communicate and defend a scientific argument.	8-9.ES.1.6.7 Explain the differences among observations, hypotheses, and theories.
Goal 1.8: Understand Technical Communication	8-9.ES.1.8.1 Analyze technical writing, graphs, charts, and diagrams.						

Standard 4: Earth and Space Systems

Goals:	Objectives		
Goal 4.1: Understand Scientific Theories of Origin and Subsequent Changes in the Universe and Earth Systems	8-9.ES.4.1.1 Explain the current scientific theory that suggests that the solar system formed from a nebular cloud of dust and gas.		8-9.ES.4.1.2 Identify methods used to estimate geologic time.
Goal 4.2: Understand the Geo-chemical Cycles and Energy in the Earth System	8-9.ES.4.1.3 Show how interactions among the solid earth, oceans, atmosphere, and organisms have changed the earth system over time.		
	8-9.ES.4.2.1 Explain the internal and external energy sources of the earth.		

Standard 5: Personal and Social Perspectives; Technology

Goals:	Objectives		
Goal 5.1: Understand Common Environmental Quality Issues, Both Natural and Human Induced	8-9.ES.5.1.1 Analyze environmental issues such as water and air quality, hazardous waste, and depletion of natural resources.		
Goal 5.2: Understand the Relationship between Science and Technology	8-9.ES.5.2.1 Explain how science advances technology.	8-9.ES.5.2.2 Explain how technology advances science.	8-9.ES.5.2.3 Explain how science and technology are pursued for different purposes.
Goal 5.3: Understand the Importance of Natural Resources and the Need to Manage and Conserve Them	8-9.ES.5.3.1 Describe the difference between renewable and nonrenewable resources. (656.03a)		